

Patent claims

1. A curved assembly line and/or conveyor belt, in particular for the assembly and transport of motor vehicles or motor vehicle parts in production, which is formed by carrying elements which are mounted in an articulated manner with respect to one another and engage positively one into the other and which in each case have an upper platform and a lower carrying frame and the end faces of which are convexly and concavely curved in the form of an arc of a circle with approximately identical radii of curvature, so that in each case a convex and a concave recess of two adjacent carrying elements form, bearing positively one against the other, a continuous conveyor belt transition both in curved sections and on a straight line, characterized in that in each case carrying elements (2) with end faces (9) concave on both sides and with end faces (6, 7) convex on both sides alternate with one another in the longitudinal direction of the assembly line and/or conveyor belt (1), and in each case the carrying elements (2) with end faces (9) concave on both sides are designed as short intermediate elements (8) between the load-receiving carrying elements (2) with end faces (6, 7) convex on both sides.

2. The curved assembly line and/or conveyor belt as claimed in claim 1, characterized in that a multiplicity of carrying elements (2) are joined together via connecting members into a closed or open composite platform structure.

3. The curved assembly line and/or conveyor belt as claimed in claims 1 and 2, characterized in that the connecting members of the carrying elements are coupling rods (10), and in each case two adjacent carrying elements (2) separated by a common intermediate piece (8) and having convex end faces (6, 7) are connected to one another in an articulated manner by means of a common coupling rod (10), the two articulation points (11) of each coupling rod (10) lying in each case on the radius center points of those end faces (6, 7, 9) of the carrying elements (2, 8) which are curved concavely in the form of an arc of a circle.

4. The curved assembly line and/or conveyor belt as claimed in claims 1 to 3, characterized in that roller guides or sliding guides are provided on the end face in those regions of the carrying elements (2, 8) which face one another.

5. The curved assembly line and/or conveyor belt as claimed in one of claims 1 to 4, characterized in that the drive takes place by means of a plurality of friction-wheel stations distributed along the travel of the carrying elements (2, 8).

6. The curved assembly line and/or conveyor belt as claimed in one of claims 1 to 4, characterized in that the drive of the assembly line and/or conveyor belt (1) takes place via individual drives which are assigned to at least every nth carrying element (2) and which are arranged, co-moving, on the corresponding carrying element (2).

7. The curved assembly line and/or conveyor belt as claimed in one of claims 1 to 6, characterized in that the energy and/or data supply of the carrying elements (2) takes place permanently via contact lines.

8. The curved assembly line and/or conveyor belt as claimed in one of claims 1 to 6, characterized in that the energy and/or data supply takes place permanently or inductively in sections.

9. The curved assembly line and/or conveyor belt as claimed in one of claims 1 to 8, characterized in that the guidance of at least every second carrying element (2) takes place via guide rails (17) laid on the ground.

10. The curved assembly line and/or conveyor belt as claimed in one of claims 1 to 9, characterized in that the distance between two guide rails (17) laid with a spacing between them is reduced in the curved region, or in that, in the case of one guide rail, the guide rail is designed with a small width in the curve.

11. The curved assembly line and/or conveyor belt as claimed in one of claims 1 to 10, characterized in that the carrying elements (2, 8) rotating in a closed composite platform structure are preferably guided on an oval (stadium-shaped) path of rotation with two straight conveying sections and with semicircular curves connecting these on both sides.

12. The curved assembly line and/or conveyor belt as claimed in one of claims 1 to 11, characterized in that the lateral guidance of the carrying elements (2) takes place at outer and/or inner carrying rails.

13. The curved assembly line and/or conveyor belt as claimed in one of claims 1 to 12, characterized in that the intermediate elements (8) rotate, unguided.

14. The curved assembly line and/or conveyor belt as claimed in one of claims 1 to 13, characterized in that active or passive lifting devices are installed in at least individual carrying elements (2).

15. The curved assembly line and/or conveyor belt as claimed in one of claims 1 to 14, characterized in that vertical arcs are provided in the carrying and/or guide rails (17) for changing the level of the plane of rotation, and the carrying elements (2, 8) are additionally connected to one another via horizontal joints.

16. The curved assembly line and/or conveyor belt as claimed in one of claims 1 to 15, characterized in that the carrying elements (8) designed as an intermediate element are configured to be easily removable for inspection and/or maintenance purposes.

17. The curved assembly line and/or conveyor belt as claimed in one of claims 1 to 15, characterized in that vertical load transmission takes place via co-moving steel rollers (13), all the steel rollers (13) being mounted rotatably about the vertical axis.